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09/447,472

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EXAMINER

CHOWDHURY, SUMAIYA A

ART UNIT

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2421

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|---|---|--|
| Office Action Summary | Application No. 09/447,472 | Applicant(s) ARMSTRONG ET AL. | |
| | Examiner SUMAIYA A. CHOWDHURY | Art Unit 2421 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-8,19,21-25 and 27-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-8,19,21-25 and 27-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-4, 6-8, 19, 21-25 and 27-34 have been considered but are moot in view of the new ground(s) of rejection.

(a) On page 9 of the Remarks filed 5/4/09, Applicant argues that none of the references teach that files are transmitted from a primary storage partition to a secondary storage partition upon being deemed infrequently requested.

In this Office Action, the Examiner has brought in Ong (5815662) to teach this limitation. Ong teaches once a movie with a high priority level in the buffer becomes infrequently requested by users, it is deleted from the buffer. In essence, it is provided to the secondary storage partition (storage 12), since any user who subsequently requests it, will be provided the movie from the secondary storage partition.

(b) Applicant argues "Moreover, Applicants respectfully submit that the art of record fails to teach, disclose, or suggest the specific arrangement of a plurality of head-ends where each head-end includes "a server" or "a storage" as recited, nor does it teach, Disclose or suggest a "manager where the manager comprises a content manager, a stream session manager", and a content session manager" on page 10 of the Remarks filed 5/4/09.

Please see claim analysis of claims 4 and 25 in this Office Action.

Claim Rejections - 35 USC § 103

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2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ong (5815662) in view of Ueno.

As for claim 1, Ong teaches:

A server (10c & 12 – fig. 1) for distributing requested video assets to requesting subscriber equipment via the access network (col. 3, lines 44-56);

a storage (10c & 12 – fig. 1) having a primary storage partition (buffer 10c) for storing frequently requested video assets, and a secondary storage partition (storage device 12) for storing infrequently requested video assets (The low priority movies are stored on storage device 12. Storage device 12 and buffer 10c are partitions in the sense that they are separated, yet connected to one another. Col. 6, lines 9-19, col. 5, lines 5-9, col. 5, lines 54-65, col. 4, lines 19-27, col. 4, lines 55-67);

a manager (predictive memory caching engine) for managing migration of video assets, wherein the manager tracks asset request rates and threshold rates of respective video assets (Since the engine assigns movies as either being one of a high priority movie or low priority movie, and transfers a movie between the storage 12 and buffer 10c based on the number of user requests, the asset and threshold rates are

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inherently tracked. Col. 6, lines 9-19, col. 5, lines 5-9, col. 5, lines 54-65, col. 4, lines 19-27, col. 4, lines 55-67);

wherein the manager, in response to an infrequently requested video asset becoming frequently requested, stores the frequently requested video asset in the primary storage partitions (Once a low priority movie becomes frequently requested, it is transferred to primary storage partition 10c. Col. 6, lines 9-19, col. 5, lines 5-9, col. 5, lines 54-65, col. 4, lines 19-27, col. 4, lines 55-67);

wherein the manager, in response to a frequently requested video asset becoming infrequently requested, stores the infrequently requested video asset in the secondary storage partition (Once the high priority movie in the buffer becomes infrequently requested, it is deleted from the buffer. Since it is deleted from the buffer, in essence it is provided to storage 12 since any user who subsequently requests it, will be provided the movie from storage 12. Col. 6, lines 9-19, col. 5, lines 5-9, col. 5, lines 54-65, col. 4, lines 19-27, col. 4, lines 55-67);

Ong fails to disclose:

a plurality of head-ends coupled to subscriber equipment via an access network, the head-ends comprising a server;

distributing an infrequently requested video assets amongst a plurality of the head-ends;

when the video asset becomes frequently requested, selecting a plurality of head-ends to store the video asset, and when the video asset becomes infrequently requested, selecting at least one head-end to store the video asset.

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In an analogous art, Ueno teaches:

a plurality of head-ends (1001, 1005, 1006, fig. 10) coupled to subscriber equipment (STUs, 1010-1013) via an access network (1008), the head-ends comprising a server (1001, 1005, 1006).

distributing infrequently requested video assets amongst a plurality of head-ends (Ueno teaches low frequency video assets are stored in the center server. Ueno further teaches that there exists at least one center server. From this it can be inferred that there are multiple center servers which store low frequency video assets; See Abstract);

when the video asset becomes frequently requested, selecting a plurality of head-ends (local server) to store the video asset, and when the video asset becomes infrequently requested, selecting at least one head-end (center server) to store the video asset (Ueno teaches that frequently requested video assets are stored on at the local servers, and infrequently requested video assets are stored at the center servers. Hence, when the frequency of the video assets goes above or below a threshold, the other type of server is selected to store the video asset; col. 19, line 66-col. 20, line 9).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Ong's invention to include the abovementioned limitation, as taught by Ueno, for the advantage of spreading out the video assets such that the processing power at a single head-end is reduced. A further advantage would be that the video would still be available to the user in the event that the designated head-end had a system failure.

As for claim 2, Ong discloses the manager is adapted to identify an infrequently requested video asset as becoming frequently requested when the asset request rate crosses above the threshold rate (when movie becomes high priority; col. 5, line 54- - col. 6, line 19); and

The manager is adapted to identify a frequently requested video asset as becoming infrequently requested when the asset request rate crosses below the threshold rate (col. 4, lines 64-66).

As for claim 3, Ong teaches in response to a request for a video asset received from requesting subscriber equipment, the manager controls distribution of the requested video asset from the head-end (col. 3, lines 44-55). Ueno teaches distributing the movie from the head-end identified as storing the requested video asset to the requesting subscriber equipment (Abstract; col. 19, line 66-col. 20, line 9).

Claim 19 contains the limitations of claim 1 and is analyzed as previously discussed with respect to that claim. Claim 19 additionally calls for the following which Ong teaches:

determining an asset request rate for each of said the video assets stored in each head-end; comparing the determined asset request rates with respective threshold rates of each of the video assets (Since the engine assigns movies as either being one of a high priority movie or low priority movie, and transfers a movie between the storage 12 and buffer 10c based on the number of user requests, the asset and threshold rates

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are inherently tracked. Col. 6, lines 9-19, col. 5, lines 5-9, col. 5, lines 54-65, col. 4, lines 19-27, col. 4, lines 55-67);

Claim 21 contains the limitations of claim 1 and is analyzed as previously discussed with respect to that claim.

4. Claims 4-8, 22-24, 25, 27-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ong and Ueno, in view of Sato (6173328).

As for claims 4 and 22, Ueno teaches the manager comprises:

a content manager (service control unit 1007), for receiving the request for the video asset and determining whether the requested video asset is stored locally in the storage of that head-end (1005, col. 19, lines 37-43) at which the video asset request is received (local server 1005 and service control unit 1007 are a single unit; col. 21, lines 43-52) or stored remotely in the storage of a different head-end;

a stream session manager (server resources management control unit 1003), for directing the associated server to distribute streams of video assets to subscriber equipment requesting said the video assets (col. 19, lines 20-55);

Hoever, Ong and Ueno fail to teach:

a content session manager for responding to video asset requests forwarded from managers of other ones of the head-ends.

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In an analogous art, Sato discloses:

a content session manager for responding to video asset requests forwarded from managers of other ones of the head-ends (col. 6, lines 16-42).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Ong and Ueno's invention to include the above mentioned limitation, as taught by Sato, for the advantage of effectively utilizing storage space amongst servers.

As for claim 6, Ueno teaches wherein a content manager of a local head-end at which a video asset request is received, in response to determining that a requested video asset is stored locally, notifies the stream session manager to deliver the requested video asset to the local server for transmission by the local server to the requesting subscriber equipment via the access network (col. 19, lines 20-55).

As for claim 7, Ueno teaches wherein the content manager of a local head-end at which a video asset request is received, in response to determining that a requested video asset is stored remotely in the storage of a remote head-end, instructs the stream session manager of the local head-end to contact the content session manager of the remote head-end (The local server 1005 and service control unit 1007 are one combined unit – col. 21, lines 43-50. A user request is received at the service control unit 1007 which determines where the requested video is stored - col. 19, lines 20-50. If

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it is determined that the video is stored remotely at server 1001, the video is requested from there and transmitted to the user).

As for claim 8, Ueno teaches wherein the content session manager of the remote head-end identifies the requested video asset in the storage of the remote head-end, allocates bandwidth for transmitting the requested video asset, and, in response to a determination that the requested video asset is to be provided from the remote head-end to the requesting subscriber equipment via the local head-end, notifies the server of the remote head-end to transmit the requested video asset to the local head-end using the inter-server network - col. 21, lines 43-50, col. 19, lines 20-50, col. 18, lines 21-57.

As for claim 23, Ueno discloses wherein the identified head-end is the local head-end (1005) coupled directly to the requesting subscriber equipment, the local head-end provides the requested video asset to the requesting subscriber equipment via the access network (1008) – col. 19, lines 20-50, col. 21, lines 43-53.

As for claims 24, Ueno discloses wherein, the identified head-end is one of the remote head-ends, the local head-end requests the requested video asset from the remote head-end and the remote head-end provides the requested video asset to the local head-end via an inter-server network (The local server 1005 and service control unit 1007 are one combined unit – col. 21, lines 43-50. A user request is received at the service control unit 1007 which determines where the requested video is stored - col.

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19, lines 20-50. If it is determined that the video is stored remotely at server 1001, the video is requested from there and transmitted to the user).

Claim 25 contains the limitations of claims 1 and 4 and is analyzed as previously discussed with respect to those claims. Claim 25 additionally calls for the following:

A plurality of head-ends comprising at least a local first head-end (local server) and a remote second head-end (center server); (Ueno; See Abstract);

A content session manager for receiving asset requests forwarded from other ones of the head-ends, identifying and retrieving requested video assets requested by content managers of other ones of the head-ends, and providing requested video assets to the other ones of the head-ends (Sato; col. 6, lines 16-42).

As for claim 27, Ueno discloses wherein the identified head-end is the local head-end (1005) coupled directly to the requesting subscriber equipment, the local head-end provides the requested video asset to the requesting subscriber equipment via the access network (1008) – col. 19, lines 20-50, col. 21, lines 43-53.

As for claim 28, Ueno discloses wherein, the identified head-end is one of the remote head-ends, the local head-end requests the requested video asset from the remote head-end and the remote head-end provides the requested video asset to the local head-end via an inter-server network (The local server 1005 and service control unit 1007 are one combined unit – col. 21, lines 43-50. A user request is received at the

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service control unit 1007 which determines where the requested video is stored - col. 19, lines 20-50. If it is determined that the video is stored remotely at server 1001, the video is requested from there and transmitted to the user).

As for claim 29, Ueno discloses wherein the content session manager of the remote head-end identifies the requested video asset in the storage of the remote head-end and allocates bandwidth for transmitting the requested video asset (When a user requests a VOD program, bandwidth is allocated. – col. 18, lines 21-57, col. 19, lines 20-56).

As for claim 30, Ueno teaches in response to a determination that the requested video asset is to be provided from the remote head-end to the requesting subscriber equipment via the local head-end, the content session manager of the remote head-end notifies the server of the remote head-end to transmit the requested video asset to the local head-end- (On the basis of the directions by the server resources management control unit 1003, a video is transmitted, via channels 1019 (connection between local head-end and STB) to STUs – col. 18, lines 20-35, col. 19, lines 20-50).

As for claim 31, Ueno teaches in response to a determination that the server of the local head-end is available to receive the requested video asset from the remote head-end, the server of the remote head-end streams the requested video asset to the

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local head-end over the inter-server network – Fig. 10, col. 19, lines 20-50, col. 21, lines 40-55, col. 18, lines 20-32.

As for claim 32, Ueno teaches wherein the server of the local head-end received the requested video asset from the server of the remote head-end, wherein the received video asset is stored in the storage (buffer) of the local head-end – col. 18, lines 21-57, col. 19, lines 20-50.

As for claim 33, Ueno teaches in response to a determination that the requested video asset is to be provided directly from the remote head-end to the requesting subscriber equipment, the content session manager of the remote head-end requests the stream session manager of the remote head-end to allocate bandwidth for providing the requested video asset to the requesting subscriber equipment– col. 18, lines 21-57, col. 19, lines 20-50.

As for claim 34, Ueno teaches wherein the stream session manager of the remote head-end notifies the server of the remote head-end to stream the requested video asset to the requesting subscriber equipment– col. 18, lines 21-57, col. 19, lines 20-50.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUMAIYA A. CHOWDHURY whose telephone number is (571)272-8567. The examiner can normally be reached on Mon-Fri, 9-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John W. Miller/
Supervisory Patent Examiner, Art Unit 2421

/Sumaiya A Chowdhury/
Examiner, Art Unit 2421